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ABSTRACT

A study was made to determine whether a structured language program for 2-year-old educationally disadvantaged children and a complementary structured language program for their mothers would significantly affect the language behavior of mothers and children. Twenty-four lower socioeconomic status mothers and their 2-year-olds were placed in the following three groups: (1) language treatment, (2) counseling and day care treatment, and (3) control with no treatment. Hypotheses were tested which concerned language styles and mother-child interaction patterns. Experimental language group children and mothers received treatment (verbal reinforcement, elaboration and extension) for 1 1/2 hours, 2 days a week for 10 weeks. Mothers in the counseling group received counseling on matters of concern to low income black mothers for 3 hours daily, once a week for 10 weeks. Their children were in day care for that period of time. Pre- and posttests of mothers and children in the two experimental groups were made using a syntax measure and the children were tested on concept development. Controls were posttested only. It was concluded that the structured language program (a) produced a significant change in the syntax style of mothers and the pattern of verbal interaction between mothers and children, and (b) effectively changed the syntax style of the children. (NH)

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Final Report

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THE EFFECTS OF A PRESCHOOL LANGUAGE PROGRAM ON TWO-YEAR-OLD CHILDREN AND THEIR MOTHERS

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September, 1970

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SUMMARY

The purpose of this study was to determine the effects of a systematically designed and operated language development program for culturally deprived two-year-old children and a program to train lower socio economic parent educators to carry out the program. Both programs were designed and operated according to systems design principles. Both were developed within the framework of a performance based model.

Nine hypotheses were tested in this study.

1. Will a structured language training program for the mothers of two-year-old educationally deprived children result in changed language styles for the mothers in terms of syntax?

2. Will a structured language treatment with the two-year-old educationally disadvantaged children result in changed language styles for the children in terms of syntax?

3. Will a structured language training program for mothers of two-year-old educationally disadvantaged children result in a change of interaction patterns with their children in terms of elaboration, extension, and verbal reinforcement?

4. Will a group counseling program for the mothers of two-year-old educationally disadvantaged children result in changed language styles for the mothers in terms of syntax?

5. Will a day care program for the two-year-old educationally disadvantaged children of the mothers in the counseling training program result in changed language styles for the children in terms of syntax?

6. Will a group counseling program for mothers of two-year-old educationally disadvantaged children result in a change of interaction patterns with their children in terms of elaboration, extension, and verbal reinforcement?

7. Will there be a difference in leaving rate in language styles in terms of syntax among the mothers in the structured language training programs, the mothers participating in the group counseling programs, and the mothers who received no training?

8. Will there be a difference in leaving rate in language styles in terms of syntax among the children participating in the structured language program, the children participating in the day care program, and the children who did not participate in a planned program?

9. Will there be a difference in leaving rate in mother interaction patterns with their children among the mothers participating in the structured language training program, the mothers participating in the group counseling program and the mothers who received no training?

The population for the study consisted of 24 lower socio-economic status mothers with two-year-old educationally deprived children in a mile radius of a Head Start Day Care Center. They were placed into the following three groups: language treatment group, counseling and day care treatment group, and a control group with no treatment.

Experimental language group children received the language treatment for 1½ hours, 2 days a week for 10 weeks. The language treatment included the following behavioral subtasks derived from previous research: verbal reinforcement, elaboration and extension. Experimental language treatment mothers received a combination of observation of modeled adult-child interaction, discussion, and micro teaching based on the major areas of the children's language treatment for 1½ hours, 2 days a week for 10 weeks.

Mothers in the counseling treatment group received counseling for 3 hours a day, 1 day a week for 10 weeks.

The purpose of the group counseling experience was to identify and discuss some of the more pressing concerns of low income black mothers, and to identify some alternative methods of dealing with these concerns and to identify black positives which included such things as the new black image, including natural hair styles, the concept of "soul" and what they mean to black people. Their children in the day care treatment group received a day care environment for 3 hours a day, 1 day a week for 10 weeks. Mothers and children in the control group received no treatment and were posttested only.

All mothers and children in the two experimental groups were measured on their entering and leaving rates using a syntax measure. These measures were analyzed for gain scores and between group differences. The spontaneous language samples of mother and child interactions were analyzed by comparing the frequency of syntax transformations between groups by means of the chi square technique. Change of level of syntax usage in each group after receiving the treatment was also analyzed by the chi square. Differences between the pre and post measures in relative change of corrective feedback techniques was tested for significance by the Randomization test, a non-parametic test. Comparison of differences in concept development for the children in Group I and Group II was also made by the Randomization test.

A significant difference was found between the entering and leaving rate for the language treatment group in the usage of syntax by the mothers with their two-year-old children, as well as by their children. There was no significant difference found between entering and leaving rate in syntax usage for the counseling group mothers or their children who received the day care treatment. No significant difference was found among the three groups on leaving syntax rates although there was a significant difference between the children in the language treatment group and the day care treatment group on entering rate, with the day care children showing superiority in that they were using higher levels of emerging transformational grammar then the language treatment group.

A significant difference was found among the three groups of mothers on leaving rates in terms of types of interaction (verbal reinforcement, extension, and elaboration) used with their children. A significant difference was found between entering and leaving rate for the language

treatment mothers in the case of elaboration. No significant difference in types of interaction was found for the counseling group mothers between entering and leaving rates. There was a significant difference in concept development between the language treatment children and the day care treatment children in favor of the language treatment children.

The following conclusions are derived from the results of the study on the effects of a language program on two-year-old children and their mothers previously reported:

1. A structured language training program for lower socio-economic mothers of culturally disadvantaged two-year-old children is effective in modifying the syntax style of the mothers and the pattern of verbal interaction between the mothers and the children;

2. A structured language training program for the mothers accompanied by a structured language preschool program for the children is effective in changing the syntax style of the child;

3. Early intervention with a structured language development program for lower-socio-economic status mothers and children is feasible, practical, and possible. It is suggested that a longitudinal study of the population in this research be made to attempt to determine the long range effectiveness of such a program.

CHAPTER I

THE PROBLEM

One of the major competencies that children need for success in the public school system is that of oral language skills. Research demonstrates that children and youth from culturally different backgrounds are underachievers and most of them enter school with language difficulties. The educational needs of learners from culturally different groups are influenced by low income, poor nutrition and health, interrupted and non-sequential education and bi-cultural conflicts. There is general agreement that one of the means to reverse the poverty cycle and the related language development problems is early intervention to influence the development of language in the young child. According to the linguistic theory, effective language intervention should occur during that time that basic verbal language is formulating which is approximately 18 months to 3 years of age.

Therefore, it was the purpose of this study to determine whether a structured language treatment administered to two-year-old, educationally-disadvantaged children simultaneously with a complementary structured language program for the mothers of the two-year-old educationally disadvantaged children would have a significant effect upon the language behavior of mothers and children.

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Hypotheses

More specifically, the study sought to answer the following questions:

1. Will a structured language training program for the mothers of the two-year-old educationally-deprived children using observation of modeled adult-child verbal interaction, lecture and micro-teaching result in changed language styles for the mother in terms of syntax?

2. Will a structured language treatment with two-year-old educationally-disadvantaged children with elementary education students in teacher training and mother-child interaction result in changed language styles for the child in terms of syntax?

3. Will a structured language training program for mothers of the two-year-old educationally-disadvantaged children using observation of modeled adult-child verbal interaction, lecture, and micro-teaching result in a change in language interaction patterns with their children in terms of elaboration, extension, and verbal reinforcement of the basic techniques of the language treatment?

4. Will the language program for mother and child produce a significant developmental difference in syntax between experimental group and a group of mothers receiving group counseling and a day care treatment for their children?

5. Will the language program for mother and child produce a significant developmental difference in syntax between experimental group and the control group that receives no treatment?

Need for the Study

It has become evident that in the families of lower socio-economic class intervention into the family language structure must be made in order to influence a child's language development. Inferences have been made from studies in compensatory education that preschool programs directed at the disadvantaged child that do not involve the mother are accepting a challenge beyond the capacity of any educational curriculum. In discussing the failures of compensatory pre-school education it has been suggested that preschools are simply attacking the wrong problem with the wrong person. Rather than provide enrichment and training to a disadvantaged child, it might be wise in essential areas such as language skills. Although several studies have shown direct relations between the language of mother and child, to date little has been done to alter the linguistic styles of lower socio-economic class mother's language interaction patterns with her child. (Shipman & Hess, 1968; Bernstein, 1964; Stodlosky, 1965).

The recognition that parental involvement in the learning process is crucial to the child's early development has led to the initiation of various programs for parents of culturally disadvantaged preschool children. These programs have generally provided parents with information regarding childrearing practices, child development, and school readiness (Kirk, 1958; Brassiel and Terrell, 1962; Crow, et.al., 1966; Fusco, 1964; Gordon, 1969; Liddle, 1963; Weikart, et.al., 1966). Typically these programs have been developed as an integral part of an overall preschool program. It has, therefore, been difficult to determine the impact of parental involvement on the child's progress, and, as a result, there has been little objective evidence that such involvement actually enhances the growth of the child. Most of the measures of these programs have been in the area of attitudes. The evident need for a more accurate measure of parent behavior change in intervention programs and the subsequent effect on the child is of necessity to justify continuation of parent intervention programs.

The appropriate age span for language intervention is identified in the following literature. Hund (1964) points out the years immediately following infancy are those when an adverse environment is most likely to inhibit language development and to prevent optimal intellectual functioning.

Language acquisition occurs in a short time. Grammatical speech does not begin before 1½ years of age, yet according to existing data, the basic process is complete by 3½ years. Thus, a basis for the competence of adult grammar must emerge in the span of 24 months (McNeill, 1966). It has been established that by the time the average child is six years old he has mastered nearly all of the phonemic distinctions of his language and almost all its common grammatical forms and constructions, at least those used by older people in his environment (Carroll, 1965; Loban, 1965).

Recently, various language programs have been used with the young economically-disadvantaged child three years of age and older, however, only one program to date has been used with effective evidence with the economically-disadvantaged two-year-old child (Cazden, 1965). In the absence of any effort to influence language of the child as a consequent of altering and elaborating the mother's behavior it is important to determine the educational effects on the child and mother. The problem of whether modifying the language interaction patterns of the mother will have

significant influence on a child's language could have implications for future home and preschool programs.

Further support for intervention is the contention that the effects of cultural deprivation on intellectual development are cumulative (Hunt, 1964; Ausubel, 1966; Deutsch, 1964; and Goldberg, 1965). Furthermore, the plasticity of intelligence tends to decrease as the child grows older and thus is less amenable to change.

Language Development Related to the Treatment

The following literature and research is directly related to the conditions that brought about the learner outcome that was desired for this study. A purpose of this study was to create an environment that would increase the expressive language functioning by providing a continual exhange of communication between adult and child with individual attention on syntax structure and the conceptual content of language.

Corrective Feedback Techniques. In order to facilitate the learnings of sounds, sequences of sounds, names for objects, experiences, and differentiation between the names for similar objects and experiences, and finally the patterns of grammar and syntax characteristic of the child's given language he needs phonetic, semantic, and grammatical feedback. Wyatt (1969) describes the ideal language teaching-learning conditions to contain the following:

a. The adult matches words and phrases closely with those of the child.

b. The adult teaches the child new words and/or differentiation among similar objects and concepts.

c. The adult provides child with immediate and specific verbal feedback.

d. The adult teachers casually in a setting of mutual delight in each other.

Judson Brown (1949) suggested that there are at least three different types of feedback: informational, rewarding,

and motivating. Wyatt (1969) suggested feedback should also be immediate and continuous and appropriate for the age of the child and stage of development.

The following techniques of corrective feedback were implemented in this study when responding to a child's statement.

Verbal Reinforcement. This technique entailed giving immediate "feedback" when the child gives a verbal response (Gray, 1968; Wyatt, 1969). It is important to reinforce the child or make the child feel good for trying and help him to realize why it is good.

A reinforce is any "stimulus event that will maintain or increase the strength of a response or stimulus-response connection associated with it" (Deese, 1956, p. 16). In this study the reinforcement was in the form of a verbal reinforcer.

B. F. Skinner (1957) has expressed the view that language learning can be studied by observing (1) an operation performed upon the organism from without and (2) an instance of behavior. For example, speech sounds are emitted and reinforced as any other bits of behavior. Language is divided into two kinds. Mands are utterances making demands on the hearer and are reinforced by the hearer. Tacts are the naming segments of language (richer and more versatile than mands) and reinforcement by the hearer is more general. In either case it is the emission of the sound and the reinforcement of the adult that increases the amount of verbalization of the child.

Adult reinforcement of speech as such may increase the gross amount. Evidence for this effect does exist, at least during short experimental sessions (Salzinger et al., 1962).

Extension. This technique provided corrective feedback and experiences for the child when he talked with the adult. That is, the adult said more completely what the child had tried to say, but kept it close to the child's own words. Children between 12 and 24 months usually produce one-word utterances most of which are nouns in adult grammar but verbs and adjectives appear also. (McNeill, 1966). It is these words that the adult extended.

The following table from Brown and Bellugi (1964) shows how the adult repeats and adds to the child's words

and word parts. These additions make the child's speech more complete and more specifically appropriate to the situation.

Child says	Adult
Baby highchair	Baby is in the highchair.
Throw Daddy	Throw it to Daddy.
Eve lunch	Eve is having her lunch.

Such typical extensions seem to constitute examples of feedback. In fact, extensions constitute the one category of adult responses in which the nature of the assistance to the child can be specified. R. Brown and Bellugi suggest how extensions provide this assistance, particularly for the acquisition of grammar:

> By adding something to the words the child has just produced one confirms his response insofar as it is appropriate. In addition one takes him somewhat beyond that response but not greatly beyond it. One encodes additional meanings at a moment when he is most likely to be attending to the cues that can teach that meaning (1964, p. 143).

Elaboration. This technique involved adding a descriptive word to the child's statement or object with which he is working or playing.

Cazden (1965) in a study with two-year-olds, found in acquisition of grammar it appears that meaningful variety and frequency of conversational engagement is critical as opposed to corrective exposure to limited forms. She concluded that "What young children should have is plenty of opportunity to talk things over out loud with conversation focused on the development of ideas. Given this opportunity, the acquisition of grammar will be assisted too."

This technique is further supported by Razran (1961) in a Soviet experiment. Nineteen-month-old children were taught the concept of book by three different methods. One group received a single book and a single sentence. The varied language group received a single book and twenty different sentences about the book. The varied referent group received twenty different books and one sentence. Learning as measured

by the child's ability to select a book from a group of objects, was greatest for the varied language group, next best for the varied referent group, and practically non-existent for the first group.

Slobin in his studies of children's acquisition of syntax found that expansions were among the most important teaching devices used by adults. (Slobin, 1967)

J. McVicker Hunt (1964) discussed the concept of the match between the incoming information and that already stored within the listener (the child). He pointed to the discrepancy that often exists between the level of complexity in the language of parents and teachers and the level of complexity a child's organism can handle comfortably and effectively. He suggested the adult incorporate two skills when attempting to determine the appropriate language match for the child: First the adult should through listening and observation, ascertain what information the child has already stored and understood and what skills he already commands; and secondly, it must be the adult, the developed organism, who consciously matches his style of communication with that of the child the less developed one.

Encoding. As stated previously encoding is the person's ability to put ideas into words. Language development of the child who is beginning to use language symbols is contingent on encoding. John and Goldstein (1964) argued that the process of generalization and discrimination involved in learning the meanings of more abstract words does not come about simply through "reception exposure" to many examples, but through "active participation with more verbally mature individual." The benefits of variety on non-verbal experiences may depend on the availability of help in encoding that experience into words. The stimuli to encourage a child to encode will vary from child to child. One must determine what it is that motivates a child to talk. The most frequently used question used by adult and child alike at this stage of development is "What's that?" The other "wh" questions are also appropriate. (Stout and Moore, 1968)

Use of Storybooks with Children and/or Reading to Children. Reading to children is an important source of meaningful variety of language out of which to build concepts (John, 1968). Irvin (1960) inticed working-class mothers to read to their children for twenty minutes a day from the

time the children were thirteen months old until they were thirty months old. The result was a significant increase in production of speech sounds both in tokens and types. Irvin interpreted this result as a response to the systematic increase in the "speech sound stimulation." It is also possible and even likely that in the course of reading, the mothers also responded to the vocalizations of the child which the reading may have promoted.

Chomsky (1959) hypothesized that the child picks up a large part of his vocabulary and "feel" for sentence structure from television, being read to, and listening to adults. Bellugi and Brown (1964) and Cazden (1965) demonstrated that there is evidence that the child derives sentence structure from the complete utterances of the surrounding adults who do not require complete utterances of the surrounding adults who do not require complete sentences from him. The growth pattern may develop somewhat on the following scheme: (a) growing receptive competence, first to (b) growind productive competence, and (c) both a and b, increasingly reflecting the complexity and frequency of adult-child interaction.

Concrete Motor Processes. Piaget (1926) and Bruner (1964) indicated that abstract relations appear to be grounded in enactive, sensory experience which is progressively organized into heirarchially more symbolic levels. This was found to be evident in the study results of Shipman and Hess (1965).

In a study with disadvantaged four-year-olds it was found that the ability to express oneself verbally is the common requisite for successful performance on measurements in which the disadvantaged children showed the greater deficit. It was found that when learning activities were structured to physically engage the chid while concurrent, meaningful verbalizations were elicited, verbal expressive abilities dramatically improved. (Karnes, 1968)

Contrary to traditional nursery school philosophy, Brittain (1969) found that preschool children actually enjoyed discussing their art work as they were in the process. He also found that the children worked longer on a piece of creative work and the work was developmentally on a higher level when an adult encouraged verbalization from the child while he was working. Combining verbalization with a physical activity enables the child to clarify specific

word meanings. Ausubel (1964) wrote of the desirability of a wide range of objects which can serve as referents for speech.

As a child's fund of concepts learned from direct experiences increases, he can begin to develop and extend concepts from vicarious experiences, especially from stories, pictures and direct conversation. Television has considerable potential in this respect. Children may also pick out unfamiliar words that they hear in various situations and inquire about their meaning. When concept learning starts with the term and proceeds with definition and illustrations it is learned inductively, more in the fasion of many later concepts met in school. The skill of teaching a concept in this fashion is in utilizing the child's concepts that are well formed and vivid for him to help him construct mental images of representative members of the new class or concept.

During the first part of the preoperation stage the adult should ask inquiry questions of the who, what, when and where questions of the child. It is not until the child reaches the intuitive stage (approximately age 4-7) that is is appropriate to ask the child how and why questions. Piaget found that it is at this time that "why" questions become meaningful to the child.

Model for Performanced Based, Language Development Program

The language treatment for the experimental treatment of this study was carried out within the framework of this performance based model. A competency or performance based, field centered model of a teacher education program derives from the primary assumption that learning facilitators, be they parents, day care staff or teachers should be able to demonstrate that they are able to perform the functions they are expected to perform before they assume the responsibility for doing so. (Ward, 1969)

The model is based upon the methodology of systems anslysis design. Generally, the application of system design principles means that each of the functional parts within the model, as well as the model as a whole, assumes three characteristics:

a. it is designed to bring about a specified and measurable outcome which in this study was certain behaviors on the part of the parent and child.

b. it is designed so that evidence as to the effectiveness with which it brings about is intended outcome is continuously available; provided in this study by the weekly evaluations on video-tape and the pre and posttest measures.

c. it is designed to be adaptive or corrective in light of that evidence; in this study the recommendations made will be based on the evidence of the findings.

The sequence of steps involved in the systematic design is illustrated in Table II.

TABLE 1

Pupil outcomes that are desired.	Conditions that bring about the pupil outcomes that are desired.	Competencies needed by teachers to provide the conditions that bring about the pupil outcomes that are desired.	Conditions that bring about the competencies teachers need to provide the conditions that bring about the pupil outcomes that are desired.

As such the model was designed to:

Step 1. Identify desired language learner outcomes for children from 18 months to 3 years of age;

Step 2. Provide the conditions necessary for producing selected language outcomes identified in (a);

Step 3. Identify the teacher behavior essential for the conditions referred to in (b); and

Step 4. Identify the type of teacher training necessary for the production of the behavior identified in (c).

In carrying out this study within the framework of a performance based model required giving greater specificity to each of the four steps required.

Step 1. The learner outcome desired was to develop the ability to express oneself clearly.

Step 2. Conditions that brought about the learner outcomes desired became a purpose of the study which was to create an environment that would increase the expressive language functioning by providing a continual exchange of communication between adult and child with individual attention on syntax structure and the conceptual content of language.

Conditions included:

a. Verbal reinforcement which is reinforcing the child's verbalizations with positive verbal praise words.

b. Extension which is resaying the child's one or two words into a complete sentence.

c. Elaboration which gives the child new words when responding to his statement or when describing something to him.

d. Encoding which involved motivating the child to put his ideas into words.

e. Use of picture books with children.

f. Concrete motor process which involved sensory interaction with media from the multi sensory cognition systems and art experiences. See Appendix D.

Step 3. Competencies needed by adults provided the conditions that brought about the desired learner outcomes were as follows:

1. Corrective feedback techniques of verbal reinforcement, extension, and elaboration which involved adult verbal response skills were identified.

    a. Verbal reinforcement required competency in giving immediate feedback when the child gave a verbal response;

b. Extension competency required extending the child's words to the nearest intended meaning of the child;

c. Elaboration competency required adding a new descriptive word to the child's statement or in describing the object to the child.

Corrective feedback techniques were used by the parents at home and the elementary education students in the preschool environment.

2. Adult-child interaction in basic activities including inquiry and questioning strategies and the above corrective feedback techniques were used with the multi-sensory cognition systems in the preschool environment by the elementary education students.

a. Encoding required competency in determining the stimuli for each individual child that promoted encoding.

b. Use of storybooks with children required competency in reading stories and in implementing sequential questioning techniques based on language and cognitive development;

c. Concrete motor processes required competency in questioning strategies to promote exploration and inquiry on the part of the child while he was interacting with some object.

Step 4. Conditions that brought about the competencies adults needed to provide the conditions that brought about the desired learner outcome became the teacher-parent training program.

The preoperational stage language development adult training program was divided into two treatments. Only program (1), Corrective Feedback Techniques, was implemented with the experimental mothers. Both (1) and (2), Adult-Child Interaction in Basic Activities Program, were implemented in the nursery school with the children by the elementary education students.

These treatments contain the content described under Step 2 and were implemented by the following conditions:

1. Modeled video-tape of adult-child interaction for the specific technique being taught was viewed by the adult;

2. Lecture explanation of the specific technique was given by the experimenter;

3. Adult interacted verbally on video-tape with a preoperational stage child emphasizing the specific technique;

4. Adult compared his video-tape to the modeled video-tape;

5. For the purposes of this study the sequence 3, 4, and 5 was not continued until competency was acquired for each parent. The competency level of each parent was simply measured and accepted.

CHAPTER II

METHOD

Subjects

The population of parents fell within a one-mile radius of a Head Start Day Care Center and within the attendance boundaries of Sheraton Park School of Roosevelt School District, Phoenix, Arizona. This was an economically deprived neighborhood. Twenty-four parents with two-year-old children were slected for this study. These parents were identified by the school principal and the Head Start director as representative of the economically depressed area. The children and mothers comprising the population were Negro except for two Caucasian mothers of Negro children.

Children included in the study were not less than 19 months old at the beginning of the study and did not reach 36 months before the study's conclusion. See Table 2.

Setting

An education laboratory for the experimental and control groups was established. It consisted of three rooms. Two small rooms approximately 6 x 8 feet were used for video-taping and the classes for mothers. The video-taping room contained the equipment noted in the apparatus section. The classroom for the mothers contained a large table with chairs around it and a smaller table which was used for refreshments. The video-tape recorder and monitor were brought into this room for the Tuesday micro-lessons. A large room 20' x 40' was used as the children's laboratory. The equipment used in this room is listed in Appendix D. A full-time assistant and five elementary education students worked in this space with the two-year-old children.

TABLE 2

SUBJECTS

	Name	Sex	Age in Months
Group 1	Sheila	F	27
Experimental	Wayne	M	30
Language	Jessie	M	28
Treatment	Travis	M	24
	Doug	M	24
	Barry	M	33
	Allison	F	28
	Darlene	F	32
	David	M	20
			mean age 26.8
Group 2	Derek	M	33
Counseling	Kevin	M	24
and Day	Willie	M	28
Care Treatment	Gregory	M	29
	Carlos	M	27
	Donald	M	21
	Tony	M	33
	Carl	M	29
			mean age 28
Group 3	Junior	M	19
No Treatment	Tracy	F	26
	Sylvia	F	28
	Roetto	M	25
	Patrick	M	27
	Dell	M	19
	Michael	M	30
	Carol	F	20
			mean age 25

Experimental Design

Mothers were contacted individually and eighty pe: cent elected to participate in the study. Twenty-four mothers with two-year-old children agreed to participate in the study and were then arbitrarily assigned to three groups.

Language acquisition in small children was studied under three conditions. Group I was composed of 8 mothers and 9 two-year-old children. This group received the experimental language treatment. Group II was composed of 8 mothers and 8 two-year-old children. Group II received only counseling for the mothers and a day care environment for the children. Group III was composed of 8 mothers and 8 two-year-old children. This group received no treatment and was posttested only. The design, a modification of the pretest-posttest design as advocated by Campbell and Stanley (1964) is represented as follows:

A 0 X_1 0

A 0 X_2 0

A 0

A = subjects, arbitrarily assigned to groups

0 = language measures on entering and leaving

X = treatment

Apparatus

The apparatus for the testing included an Ampex 5100 video-tape recorder, floor microphone, and a fixed form lense camera. When oral language of the mother and child was measured, they sat on a rug in a small room with selected stimuli about them, and a camera and microphone were nearby. The stimuli included three picture books, a formboard shaped toy, a stuffed dog, and a pickup truck. The video-tape equipment was also used for micro teaching sessions with the mothers. The other apparatus used has been listed in detail in Appendix D.

Procedure

Group I and Group II received a 3 hour treatment weekly for ten weeks. Sessions for Group I were 1½ hour language treatments administered two days a week. The assistant and five Arizona State University elementary education students worked with the eight two-year-old children implementing the activities and techniques of the language treatment. Parents of the children checked out a book of their child's choice after each session to take home. A language treatment designed to improve the language interaction of mother was implemented during the same time period in which the children were under direct language treatment. The techniques of verbal reinforcement, extension, and elaboration were used to improve the language behaviors of mothers. A new lesson was presented each week using the following procedure for each lesson:

The Language Learning Task

a. During the first session held on Tuesday of each week, the mothers observed modeled adult-child verbal interaction on video-tape which emphasized the specific technique in question. To conclude the first session a group discussion was carried out which emphasized the language technique--that had just been shown on video-tape. The investigator demonstrated certain feedback techniques of conversation while holding storybooks in hand and the mothers contributed suggestive means by which the techniques might be implemented in the home.

b. In the second session falling on Thursday mothers were presented with the modeled video-tape lesson shown the previous session and then allowed to practice what was learned. The practice involved verbally interacting with her child emphasizing elements of the model video-tape. During this period the mother's verbal interaction with her child was video-taped for later presentation to the mother. Following this both the modeled video-tape and the mother's video-tape were then replayed in that sequence to the mother. She was to compare her tape to the model. From time to time the experimenter assisted the mother in

evaluating her tape and in so doing positively reinforced the mother's appropriate language interactions. This weekly procedure was replicated over a period of 10 weeks. The video-tape lessons included three treatment conditions which were referred to as corrective feedback techniques. The treatment conditions used were as follows:

a. a verbal reinforcement technique consisted of words like good, yes, that's right, that were used by the experimenter when the adult answered the child's speech. A case of verbal reinforcement technique was also represented when the parent consequented responses of her child by praising him verbally using the following kinds of words in full sentences (Gray, 1968; Wyatt, 1969; Salzinger, 1962):

Words	Sentences
good	Good for you to know that is Jerry's toy.
yes	Yes, it is a black dog
that's right	That's right, it is round.
I agree	I agree, it does look dirty.
surprise	"I didn't know you knew that?"
(repeat child's word)	Child: "Dog" Adult: "Dog"

b. the extension technique consisted of the adult saying more completely what the child had said in cryptic language, but keeping his words as close to the child's own words as possible (Brown and Bellugi, 1964).

c. an elaboration technique consisted of the adult's giving the child a new word not a part of the child's vocabulary when extending his sentence or when describing something to him (Cazden, 1965; Razran, 1961). The parent in responding to her child used one of several classes of words for elaboration which are given below. (Kirk, 1969).

1. Label or Classwords--the name of an object or the class the object belongs to.
2. Color Words--the color of an object.
3. Shape Words--the shape of an object.
4. Composition Words--what the object is made of.

5. Function or Action Words--the function of the object or an action that is specific to that object.
6. Major Part--the names of major parts of the object.
7. Numerosity--the number of objects in a group.
8. Other physical characteristics such as size, weight, density, method of construction, and brightness.

Adult-child verbal interaction in the preschool was stimulated by the media in the multi sensory-cognition systems. The basic activities of encoding picture books and concrete motor processes were designed to encourage verbalization on the child's part and were implemented in the following way:

a. Encoding was implemented by verbally cajoling the child to put his ideas into words. Inducing the child to speak varied in technique from child to child and may not be exactly reproducible by other adults, but the techniques were of a common character frequently used by adults.

b. Picture books were employed to undertake the following subtasks in sequential order. A child usually cannot do #2 unless he can do #1 (Mecham, 1958).

Behavior Subtasks:

1. Naming and identifying objects in pictures. The child pointed to the objects as the adult named them or the adult pointed to an object and required the child to name it.

2. Describing details of objects within pictures according to the following classification of such details:

   a. Label or class words
   b. Color words
   c. Shape words
   d. Composition words
   e. Function or action words
   f. Major part words
   g. Number words
   h. Physical characteristic words such as size, weight, density, method of construction, and brightness.

3. Identifying action in familiar action pictures such as walking, jumping, running, sitting, etc. John and Goldstein (1964) discovered that a group of lower-class Negro four-year-old children had trouble on the Peabody Picture Vocabulary Test with such action words as digging and tying. They suggested that a word like digging differs from a word like Coca Cola in the stability of the word-referent relationship. "Gerunds such as 'tying' were failed, not because the children were deficient in experience with the referent, but rather because they had difficulty in fitting the label to the varying forms of action observed and experienced" (John and Goldstein, 1964, p. 269).

4. Telling what will happen next. The child was required to anticipate the next in a series of e events.

5. Determining relations and associations and expressing these in a simple verbal form such as, "What might occur when?".

6. Demonstrating short and long term recall for elements of books the child has previously been exposed to.

c. Concrete motor processes involved any physical interaction of child with media such as toys, instruments, and art experiences. As the child interacted motorly with an object the adult would verbally tell the child the word for the object.

The Group Counseling Task

Group II children received 3 hours per week of a day care environment. The children were free to use all materials in the environment but adult-child interaction was unstructured. A one to four adult-child ratio existed. The children's parent checked out books of the child's choosing after each session to take home. The mothers in Group II were counseledin a group for 3 hours per week. A female Negro doctoral student in Guidance and Counseling was the counselor. There were two major purposes to the group counseling experience. The first was to identify and discuss some of the more pressing concerns of low income black mothers, and to identify some alterative

methods of dealing with these concerns. Among the three outstanding issues raised were feelings related to the adequacy of schools, community issues and personal feelings that are born of the racial prejudice which they regularly encounter. The second major purpose was to identify black positives. That is it was attempted to move beyond the many negative implications involved in being black and identify those dimensions which are unique to black people which are also positive. These black positives included such things as the new black image, including natural hair styles, the concept of "soul" and what it means to black people and other cultural patterns which are singularly black. This day care and group counseling treatment was implemented for 3 hours every Wednesday for 10 weeks.

The rationale for and inclusion of this treatment group was based on a requirement by a HEW review committee. It was their interpretation that the irrelevant treatment would better control for the Hawthorne Effect than the no treatment control group proposed by this investigator.

A summary schedule of research procedure is presented in Table 3.

Nature and Responsibility of the Data

Pre and post measures on the video-tapes were transcribed and coded for judging. The judges did not know which measures were pre or post to assure objectivity in scoring tasks. The three judges all had Masters Degrees in English and some background in structural grammar. Inner judge reliability was established among the judges previous to scoring by means of Scott's Pi coefficient. Scott's Pi coefficient allows the judgment of whether or not the agreement of two observers exceeds chance. A Scott coefficient of 0.85 was required for inner judge reliability (Flanders, 1967). The coefficients computed were .85, .865, and .875.

The language samples of the mother-child interaction were analyzed in terms of a syntax measure. Lee's Developmental Sentence Types Model, and a measure directly related to the language treatment that measured the frequency of verbal reinforcement, extension, and the areas of elaboration that were used. The children's concept development was assessed by a simple concept measure. See Appendix B.

TABLE 3

Research Time Schedule

Weeks 1-4	Engaged and trained elementary education students and assistant. Made video-tapes of model adult-child verbal interaction Constructed portable cases for laboratory media for two-year-old children.
Week 5	Pretested experimental and control group mothers.
Week 6-15	Language treatment administered
	T-Th Children in experimental group attended 1½ hour language treatment.
	T-Th Mothers in experimental group received their language treatment.
	W Children in control group attended three hour day care environment.
	W Mothers in control group received their group counseling treatment.
Week 16	Experimentation ended after ten weeks of treatment.
Week 17	Posttest measures were made of two experimental and one control groups.

Pre and Posttest Procedures. At the beginning and conclusion of the ten week treatment sessions the entering and leaving rate for oral language of each subject in Group I and Group II was measured. The leaving rate of Group III was measured as a posttest only measure. The oral language sample of the mother-child interaction was made by placing the mother and child in a controlled situation discussed under Apparatus. The mother was told to play and talk with her child like she did at home. The mother and child interaction was video-taped for five minutes while they verbally interacted with selected stimuli in the testing room.

Analysis of the Data

The spontaneous language samples of mother and child interactions were analyzed by comparing the frequency of syntax transformations between groups by means of the chi square technique. Change of level of syntax usage in each group after receiving the treatment was also analyzed by the chi square technique. Comparison between groups of the types of corrective feedback used by the mothers was analyzed by chi square. Differences between the pre and post measures in the frequency of corrective feedback techniques was tested for significance by the Randomization test, a non-parametric test (Seigel, 1956). Comparison of differences in concept development for the children in Group I and Group II was made by the randomization test for two independent samples (Seigel, 1956).

CHAPTER III

ANALYSIS OF THE DATA

The experimental design, as originally planned, called for a comparison between the three groups on the posttest measures and a gain score comparison for Group I, the language treatment group, and Group II, the day care and counseling group. These dependent measures were comprised of syntax usage and types of verbal interaction.

Hypothesis I: Effects of Language Treatment on Mothers' Syntax.

TABLE 4

Means and Standard Deviations for Mothers' Use of Syntax with with Their Two-Year-Old Children.

	Entering Rates			Leaving Rates		
	Syntax Level	M.	S.D.	Syntax Level	M.	S.D.
Group I Language Treatment	0	57.625	39.1	0	51.5	14.705
	1	26.125	11.196	1	29.25	13.525
	2	1.875	1.83	2	3.25	3.418
	3	71.25	30.72	3	43.87	19.24
	4	45.375	21.23	4	70.75	22.69
	5	70.00	34.13	5	81.25	47.259
Group II Counseling Treatment	0	28.125	13.797	0	29.00	23.55
	1	26.00	11.358	1	29.50	22.61
	2	2.5	3.12	2	4.25	7.82
	3	36.625	20.62	3	35.125	17.43
	4	47.125	35.225	4	35.875	20.72
	5	69.00	42.465	5	79.625	40.68
Group III No Treatment				0	31.25	21.194
				1	22.75	12.25
				2	2.00	1.8
				3	43.87	14.15
				4	28.75	19.86
				5	56.00	35.759

Mothers of the language treatment group increased their use of higher levels of emerging transformational grammar (x^2=15.30; 5 df; $p < .01$).

Mothers in the counseling treatment group did not improve their syntactical usage to higher levels of emerging transformational grammar (x^2=2.75; 5 df).

Hypothesis II: Effects of Language Treatment of Children's Syntax.

TABLE 5

Means and Standard Deviations for the Use of Syntax by Two-Year-Old Children with Their Mothers.

	Entering Rates			Leaving Rates		
	Syntax Level	M	S.D.	Syntax Level	M	S.D.
Group I Language Treatment	0	97.66	47.46	0	59.66	41.52
	1	13.22	15.19	1	20.11	15.52
	2	.333	.666	2	.666	1.885
	3	4.22	6.285	3	6.11	7.4
	4	6.44	9.73	4	15.22	13.138
	5	1.66	1.63	5	6.55	10.199
Group II Day Care Treatment	0	52.375	27.037	0	61.25	21.74
	1	22.75	19.59	1	22.75	14.12
	2	1.25	1.639	2	2.00	3.278
	3	4.00	4.97	3	5.75	5.825
	4	6.625	4.608	4	7.125	7.355
	5	5.625	11.106	5	3.125	4.51
Group III No Treatment				0	63.625	47.43
				1	16.125	11.00
				2	.75	1.299
				3	3.875	5.325
				4	4.875	8.666
				5	4.50	7.615

Children of the language treatment group manifested a favorable change in syntax usage to higher levels of emerging transformational levels after receiving the language treatment. The difference between the entering and leaving rates was significant at the .001 level (x^2=42.31; 5 df).

Children in the day care treatment evidenced no change in syntax usage over levels of emerging transformational grammar as a result of day care treatment (x^2=5.27; 5 df).

Hypothesis III: Effects of Language Treatment on Mothers' Language Interaction Patterns.

TABLE 6

MOTHERS' CORRECTIVE FEEDBACK INTERACTION PATTERNS AS PERCENT OF TOTAL

	Verbal Reinforcement	Extension	Color	Shape	Number	Composition	Major Parts	Action Function	Label Class	Other Char.
Mothers in Experimental Language Treatment	23	9	2	0	5	0	0	1	49	11
	22.8	13.3	8.7	2.1	2.9	.9	3.0	2.2	31.6	12.5
Mothers in Counseling Treatment Group	16.9	8.5	1.4	0	.4	0	2.3	0	56.0	14.6
	25.4	10.4	1.0	0	1.3	.2	2.1	1.9	44.1	13.7
Mothers in Posttest Only Group No Treatment										
	17.9	11.8	0	0	.7	.9	.7	.7	60.7	6.6

TABLE 7

FREQUENCIES OF MOTHERS' CORRECTIVE FEEDBACK INTERACTION PATTERNS

Group	Rate Total	Reinforcement	Extension	Color	Shape	Number	Composition	Major Parts	Action Function	Label Class	Other Char.
Mothers in Experimental Language Treatment	Entering 933	212	88	15	0	46	0	0	10	462	100
	Leaving 2172	347	202	132	32	44	15	45	33	481	191
Mothers in Counseling Treatment Group	Entering 563	95	48	8	0	2	0	13	0	315	82
	Leaving 633	161	66	6	0	8	1	13	12	279	87
Mothers in Posttest Only Group No Treatment	Entering										
	Leaving 425	76	50	0	0	3	4	3	3	258	28

TABLE 8

Means and Standard Deviations for Mothers' Use of Interaction Types with Their Two-Year-Old Children

Interaction Types	Group I				Group II				Group III	
	Entering Rates		Leaving Rages		Entering Rates		Leaving Rates		Leaving Rates	
	M	S.D.	M	S.D.	M	S.D.	M	S.D.	M	S.D.
Reinforcement	26.5	15.12	43.37	20.72	11.875	7.356	20.125	11.698	9.5	6.06
Extension	11.0	6.63	25.25	17.90	6.00	4.44	8.25	7.88	6.25	6.647
Color	1.875	2.26	16.50	11.926	1.00	1.8	.75	1.639	0	0
Shape	0	0	4.0	4.2	0	0	0	0	0	0
Number	5.75	5.93	5.5	4.74	.25	.66	1.00	1.41	.375	.992
Composition	.125	.331	1.875	2.759	0	0	.125	.33	.5	1.3
Major Parts	0	0	5.625	9.068	1.625	3.6	1.625	1.866	.375	.992
Action/ Function	1.25	1.47	4.125	5.085	0	0	1.5	2.34	.375	.992
Label/ Class	57.625	25.02	60.125	25.784	39.375	33.996	34.875	27.33	32.25	15.089
Other Char.	12.5	13.17	23.875	23.289	10.25	17.419	10.87	11.91	3.5	4.15

Mothers in Group I, language treatment group, Group II, counseling treatment group, and the mothers with no treatment were significantly different among groups under different treatment conditions in the usage of types of verbal interaction with their children (x^2=35.2; 18 df; $p<.01$). The chi square was calculated on the basis of actual frequency changes between entering and leaving rates in Table 7. Table 6 suggests the language treatment mothers used all the elaboration areas in their interactions with their children and also a greater percentage of the time. Color and shape word usage was the most evident difference.

Table 7 suggests the greatest gain differences between means of interaction types for the language treatment mothers were reinforcement, extension, and in the elaboration area color and other physical characteristic words. The counseling treatment mothers did not make noticeable differences in entering and leaving mean scores except in the interaction types of reinforcement.

Differences between leaving rate means was evident in the interaction types of reinforcement, extension, color, label or classification, and other physical characteristics.

TABLE 9

Means and Standard Deviations for Change of Language Interaction Behavior

Language Interaction Type	Group I		Group II	
	Change Score		Change Score	
	M.	S.D.	M.	S.D.
Reinforcement	16.875	27.518	8.25	16.507
Extension	14.25	21.88	2.25	9.706
Color	14.625	13.835	- .243	2.659
Shape	4.00	4.5	.01	.00
Number	- .25	8.51	.506	1.77
Composition	1.756	2.959	.134	.35
Major Parts	5.63	9.69	.005	3.07
Action/Function	3.375	4.627	1.5	2.5
Label/Class	2.5	29.076	-4.5	41.578
Other Characteristics	11.375	15.729	.625	26.2

Gain scores from pre-to posttest were used as a dependent measure for each level of language interaction, measure yielding ten change scores on an interval measure. A randomization test (Siegel, 1956, p. 152) was compuated and the t-test value indicated experimental mothers improved their use of color feedback words ($p<.01$) and improved in the use of shape feedback words ($p<.05$) in comparison to the counseling treatment mothers.

Hypotheses IV and V: Effects of the Language Treatment on Syntax When Compared with Other Groups.

Mothers in the experimental languaged treatment group, in the counseling treatment group, and in the posttest only group were not significantly different in their leaving rates of syntax usage at the emerging transformational levels ($x^2=7.7$; 10 df). See Table 4 for primary data of mothers' syntax usage. Table 11 shows relative changes of syntax usage whereas Table 12 shows actual frequency changes of the mothers' syntax use.

Children in the language treatment group and the day care treatment group were significantly different on their entering rates of syntax usage over emerging transformational levels ($x^2=13.2$; 5 df; $p<.05$). Table 13 and 14 indicate that this difference was greatest at the One Word Response Level and Level I, the noun phrase level.

Children in the experimental language group, the day care group, and the control group were not significantly different in leaving rates of syntax usage over the emerging transformational levels ($x^2=9.2$; 10 df).

TABLE 10

PERCENT OF RESPONSES AT SIX LEVELS OF SYNTAX FOR MOTHERS
AT THE TIME OF ENTERING AND LEAVING

	Language Treatment Group							Counseling Treatment Group							Posttest Only Group No Treatment						
	Transformational Levels							Transformational Levels							Transformational Levels						
	0	1	2	3	4	5	T	0	1	2	3	4	5	T	0	1	2	3	4	5	T
Frequency at level on entering	21	10	0	26	17	26	2178	13.4	12.4	1.2	17.5	22.5	33	1675							
Frequency at level on leaving	18.4	10.4	1.2	15.7	25.3	29.0	2239	13.6	13.8	2.0	16.5	16.8	37.3	1707	16.9	12.3	1.1	23.8	15.6	30.3	1477
Differences		$X^2 = 15.30^*$ df = 5						$X^2 = 2.75$ df = 5													

0 = one word response

T = total number of responses

Frequencies reported in percentages

*Significant at the .01 level

TABLE 11

SYNTAX FREQUENCIES OF ENTERING AND LEAVING RATES OF MOTHERS

	Language Treatment Group							Counseling Treatment Group							Posttest Only Group No Treatment						
	Transformational Levels							Transformational Levels							Transformational Levels						
	0	1	2	3	4	5	T	0	1	2	3	4	5	T	0	1	2	3	4	5	T
Frequency at level on entering	461	209	15	570	363	560	2178	225	208	20	293	377	552	1675							
Frequency at level on leaving	412	234	26	351	566	650	2239	232	236	34	281	287	637	1707	250	182	16	351	230	448	1477
Differences		$X^2 = 15.30^*$ df = 5						$X^2 = 2.75$ df = 5													

0 = one word response

T = total number of responses

*Significant at the .01 level

TABLE 12

PERCENT OF RESPONSES AT SIX LEVELS OF SYNTAX FOR CHILDREN AT THE TIME OF ENTERING AND OF LEAVING

	Language Treatment Group							Counseling Treatment Group							Posttest Only Group No Treatment						
	Transformational Levels							Transformational Levels							Transformational Levels						
	0	1	2	3	4	5	T	0	1	2	3	4	5	T	0	1	2	3	4	5	T
Frequency at level on entering	79	10.7	.3	3.4	5.2	1.3	1112	56.4	24.5	1.3	4.3	7.1	6.3	743							
Frequency at level on leaving	55.1	18.6	.6	5.6	14.1	6.1	975	60	22.3	2	5.6	7.0	3.1	816	67.9	17.2	.8	4.1	5.2	4.8	750
Difference			$X^2 = 42.31^*$ df = 6					$X^2 = 5.27$ df = 5													

0 = one word response

T = total number of responses

*Significant at the .001 level

TABLE 13

SYNTAX LEVEL FREQUENCIES OF ENTERING AND LEAVING RATES OF THE CHILDREN

	Language Treatment Group							Counseling Treatment Group							Posttest Only Group No Treatment						
	Transformational Levels							Transformational Levels							Transformational Levels						
	0	1	2	3	4	5	T	0	1	2	3	4	5	T	0	1	2	3	4	5	T
Frequency at level on entering	879	119	3	38	58	15	1112	419	182	10	32	53	47	743							
Frequency at level on leaving	537	181	6	55	137	59	975	490	182	16	46	57	25	816	509	129	6	31	39	36	750
Difference		$X^2 = 42.31^*$ df = 6						$X^2 = 5.27$ df = 5													

0 = one word response

T = total number of responses

*Significant at the .001 level

Effects of Language Treatment on Concept Development

TABLE 14

Means and Standard Deviations for Concept Development of the Two-Year-Old Children.

	Leaving Rate
Group I Language Treatment	M = 17.111 S.D. = 7.187
Group II Day Care Treatment	M = 11.125 S.D. = 6.6414

The language treatment children and the day care treatment children were significantly different on the five independent concept variables of red, wood, instrument, hat, and book that were presented by the media in the preschool room. The randomization t-test value indicated that language treatment children were superior in concept knowledge of red, wood, hat, instrument, and book ($t=2.68$; 15 df; $p < .02$).

Summary of Research Findings

TABLE 15

Significant Research Findings

Language treatment mothers' entering and leaving syntax rates	X^2=15.30; 5 df	$p < .01$
Language treatment children's entering and leaving syntax rates	X^2=42.31; 5 df	$p < .001$
Language treatment mothers', counseling mothers', and no treatment mothers' leaving rate language interaction types	X^2=35.2; 18 df	$p < .01$
Language treatment mothers' and counseling mothers' change in language interaction types		
a. color	t=2.98 15 df	$p < .01$
b. shape	t=2.50 15 df	$p < .05$
Language treatment children's and day care treatment children's entering syntax rates	X^2=13.2; 5 df	$p < .05$
Language treatment children's and day care treatment children's concept development	t=2.68 15 df	$p < .02$

The most significant research finding was the change of language treatment mothers and children in the use of higher transformational levels of syntax and that the change clustered at the fourth Level which indicates the usage of complete sentences.

As a result of the language treatment, the mothers significantly used a greater range of language interaction types with their children than mothers in the other treatment groups and also were more verbal in that they used interaction types to a greater frequency than the mothers in Group II and Group III.

Day Care treatment children were significantly superior to language treatment children in syntax usage on entering rate; however, there was no significant difference on leaving rate indicating the significant gain made by the language treatment children in syntax usage.

Language treatment children were significantly superior to day care children in concept development relating to the specific concepts presented by the media in the preschool.

CHAPTER IV

SUMMARY AND DISCUSSION

Modification in the Syntax Behavior of Mothers and Children. A language training program for mothers of two-year-old educationally-deprived children had beneficial effects on the mothers' use of syntax during verbal interactions with child verbal interactions, lecture, and micro-teaching. A statistical analysis confirmed a significant positive change toward more complex levels of emerging transformational g grammar. There was a decrease in use of one word responses and imperative commands and an increase in the number of complete sentences used by the mothers.

The two-year-old children of this study who had the special language treatment acquired the use of more complex grammar. Those children not experiencing the language treatment did not undergo a significant change in the grammatical structure of their oral language. There was a decrease of one-word responses for language treatment children and an increase in use of complete sentence structure. A large increase in the use of the complete sentence should be specially noted for it represents a major step in the acquisition of grammatical structure (Lee, 1966). Interrogatives also increased which tended to be the question "What's that?" for the children in all groups. It is unfortunate that this response was categorized at the higher level (V) as it is an easily parroted question whereas an original sentence on Level IV is probably better evidence of the child's grammatical ability.

The increase of syntax usage for mothers and children in Level IV is perhaps the most interesting finding of this research. The language treatment areas of extension and elaboration for the mothers were designed to give the children direct feedback in complete sentence form. The syntax findings suggest that the mothers did more from one word and phrase responses to complete sentences when interacting with their two-year-old children.

The large increase of usage at Level IV by the language treatment children in comparison to the day care children and the children who received no treatment suggests that the mothers' change had a direct effect on the children's change.

Effect of the Language Treatment on Mothers' Language Tre Interaction Patterns. Those mothers who observed modeled adult-child verbal interactions, heard lectures, and participated in micro-teaching made greater use of elaboration extension, and verbal reinforcement when interacting with their children. There was, in particular, a significant change between the entering and leaving rates of color and shape feedback words in the language treatment mothers. The language treatment mothers used various kinds of elaboration more than the mothers in the counseling treatment group. Frequency of response to child's verbalizations almost doubled for the language treatment mothers in most types of interaction. On the most part, the percentages of usage in the various categories did not change whereas the frequency of use did.

The mothers in the counseling treatment group and posttest only group had heavy percentages of responses in the label or classification area of elaboration which suggests these mothers engage in much naming of objects and little elaborating of other characteristics of the objects.

The language treatment mothers seemed to be most familiar with color and shape words and used them frequently throughout the weeks after they had been introduced by a lesson. The mothers' existing vocabulary was more limited in the other characteristic areas such as composition, major parts, and action or function words. It was evident on the micro-teaching tapes for these areas that the mothers had to think of words for these categories and their response to the child was not of the spontaneous nature as with color, shape, and number words.

Modification in the Syntax Behavior of Mothers and Children Under Different Treatment Conditions. The children in the language treatment group, day care treatment group and no treatment group did not differ significantly on leaving syntax rates. However, the children in the day care treatment group were significantly superior to the language treatment

group on entering syntax rates. The day care children were superior in that they had higher percentages on the upper levels of emerging transformational syntax levels in comparison to the language treatment children. The leaving rate indicates the day care children were using the same percentages on levels of syntax whereas the language treatment children had decreased usage on the lowest level and increased usage on the higher levels. The language treatment children and their mothers showed increases of usage on Level IV, the complete sentence level.

The mothers in the language treatment group, counseling treatment group, and posttest only group showed no significant differences on leaving syntax rates, nor did the mothers of the two treatment groups demonstrate a significant difference on entering syntax rates.

Effects of Language Treatment on Children's Concept Development. Language treatment children scored significantly better than the day care children on the concept development measure instrument which measured the five main concepts introduced by the media in the preschool. The effect of the adult giving corrective feedback to the child in the preschool was evident. The difference in groups was attributed to the verbal feedback the language treatment children received about the objects in the room. The children in the language treatment group received corrective feedback techniques with adults when the children interacted with media in the concept systems, whereas the day care treatment children received no structured language interaction with adults as they interacted with the concept systems media.

Conclusions

Based on the preceding results the following conclusions were reached.

1. Modeled adult-child verbal interactions, listening to lectures and micro-teaching brought about a significant change in mothers' interactions with their two-year-old children and usage of higher levels of emerging transformational syntax.

2. Implementation of corrective feedback techniques with the child while he was interacting with the

media in the preschool demonstrated to be a more effective way of developing and understanding of concepts than just the child's motor interaction with the media and no structured adult-child language interaction.

3. The combination language treatment of mother-child interaction at home and the adult-child interaction in the preschool environment brought about a significant increase in the use of higher levels of emerging syntax transformations in the children.

4. The above conclusions support the performance base model as an effective model for the learner outcome with this population. Step IV, the modeled video tapes combined with lecture and micro-teaching, were effective in increasing the frequency of the mothers' interactions with their children as well as broadening the types of feedback the mothers gave the children. The combination of mother and teacher interaction, Step II, with the two-year-old child brought about a significant increase of syntax usage at a higher level of emerging transformational syntax. Also in Step II, the multisensory cognition systems with the language interaction brought about understanding of the concepts they introduced. The language experimental group scored significantly better than the control day care group who did not receive the language interaction feedback techniques.

Suggestions for Further Research

1. The mothers of the language experimental group tended to be more verbal than the counseling treatment group mothers and the posttest only mothers. It is not known whether the amount of verbalization has an effect on the positive results of this study. It would therefore be of value to equalize the mother groups after pretesting. This was not done in this study as the tapes were held and coded until posttests were taken for the purposes of judging.

2. The small size of the experimental population, its limitations of random sampling and lack of representativeness in socio-economic status prevented generalization of the effectiveness of the performanced based model with other populations such as Spanish American, American Indian and other socio-economic groups. Replication of this study with other ethnic groups would be of value.

3. A longitudinal follow-up study with the population of this study would be of value in determining the long-term effects of parent-children education and answering the question of whether intervention at the age of two makes a difference in subsequent school success or failure.

APPENDIX A

ATTITUDE MEASURE

TABLE 16

MEANS AND STANDARD DEVIATIONS FOR ATTITUDE CHANGE UNDER DIFFERENT TREATMENT CONDITIONS

Attitude	Group I Language Treatment		Group II Counseling Treatment		Group III No Treatment		F Test
	M	S.D.	M	S.D.	M	S.D.	
School	8.4	1.3	9.25	.8864	9.5	.9258	2.652
Black	8.66	1.73	8.625	1.597	8.375	1.4078	.0808
Myself	8.66	1.41	8.75	1.752	8.625	1.5059	.01339
Children	8.33	1.41	8.875	1.457	7.625	2.0658	1.1389
Teacher	8.77	.971	9.125	1.457	9.00	1.41	.15986
Soul	10.00	00	10.00	00	9.125	.991	6.664*
Family	9.66	.50	9.50	1.41	8.875	1.457	1.0285

* $p < .01$

A posttest semantic differential using the above concepts demonstrated a significant difference of attitude among the three groups toward the concept of soul (F=6.664; 18 df; p .01). The only explanation for the two experimental means differing from the control group mean would be that one of the counseling group objectives was to explore the meaning of soul and the language mothers spent time in their discussion sessions emphasizing the positiveness of being black, although the terminology of sould was not used. Other than this there were no other significant differences in attitude among the groups.

RECEPTIVE LANGUAGE MEASURE

The receptive language ability of two-year-old children was measured by the Auditory Reception subtest of the Illinois Test of Psycholinguistics Ability which measures the ability to decode language. This was administered as a pre and posttest to the experimental language treatment group and day care treatment groups.

The language treatment children made a significant gain in their ability to decode information (A=.2355; 9 df; p .05). The day care treatment children did not gain in ability to decode information (A=1.1837; 8 df).

Due to the recalcitrant nature of the two-year-old child group measures of this type were not considered a valid measure of what the child actually can do.

LEE'S DEVELOPMENTAL SENTENCE TYPES (LEE, 1966)

Level I 2-Word Combination	2-Word Noun Phrase (a monkey)	2-Word Designative (dat lion)	2-Word Predicative	2-Word Verbal (walks in)	2-Word Fragments (by the wolf)	2-Word Stereotyped Phrases (I 'onne)
Level II Noun Phrases	Noun Phrase (no more baby)				(then let tails)	
Level III Constructions	Noun Phrases incorporated into Con- structions	Designative Construction (dat about two bears)	Predicative Construction (a baby in a crib)	Verb Phrase Construction (open dat door)	Phrase Struc- ture Fragments incorporated into Construc- tion (so he get)	Stereotyped Constructions (an' up an' down)
Level IV Kernel Sentences		Designative Sentence (dat is duh ovah class)	Predicative Sentence (his name is Wesley)	Actor-Action Sentence (a lady talk to duh man)	(see tha's 3 little)	Stereotyped Constructions incorporated into sentences (thads all I know)
Level V Successive Levels Emerging Transformations		Interrogative "Wh" Question (who's this)	Negative Conjunction (dat's not me dat's Deborah)	"Do" plus Negative Infinitival Complement (an' Debby didn' know it was dark- time)	Transfor- mational Fragments incorporated into Trans- formations (an tiger gon'na house an tiger got all burned up)	(I dunno that one)

Measure that correlates directly with Language Treatment

Treatment Category	Example	Frequency Rate
1. Verbal Reinforcement A word that verbally reinforces the child that what he has said is correct or good.	good, yes that's right Repeating the child's word.	
2. Extension Saying more completely what the child had tried to say--extend his one or two words	C. "doggie" A. "Yes, the doggie is playing with the ball."	
3. Elaboration Adding a descriptive word.		
a. Color	Red, blue, etc.	
b. Shape	Round, square	
c. Number	Name number word & then count to the number.	
d. Composition	Wood, plastic, silk, air, etc.	
e. Major parts	Eyes, nose, window, door	
f. Label or class	Truck Apple Toy Fruit	
g. Action or function	Needle--sews Ball--rolls	
h. Other physical characteristics Size Density Weight Texture	 Big-little Hollow-solid Heavy-light Soft-rough	

GLOSSARY

Educationally disadvantaged For purposes of this study, an educationally disadvantaged child was a Negro, two-year-old child, who has need for special educational assistance in order that his level of educational attainment may be raised to that appropriate for a child of his age. The term includes those children who are handicapped or whose needs for such special educational assistance result from poverty, neglect, or cultural or linguistic isolation from the community at large.

Elementary education students The elementary education students in this study were Negro female students in teacher training who were junior or senior level in standing.

Mothers Mothers included any parent of a Negro child who spent a large percentage of the day with the child. This included Negro mothers, fathers, foster mother and a Caucasian mother.

Two-year-old children In this study two-year-old children were Negro children who were at least nineteen months at the beginning of the study and who would not be three years of age before June 15, 1970.

Structured language program From the standpoint of curriculum and teaching, a structured language program is conceirved as having measurable learning tasks used to achieve the defined learner outcome.

Syntax Study of the grouping of the smallest units of sound that carry meaning into meaningful patterns which are known as phrases, clauses, and sentences.

Intervention Intervention is defined as education in which the goal is to modify observable language behavior of mother and child adding, by enlarging and refining their existing language.

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